

Atty. Dkt. No.: 60,680-754  
Dana Ref. No.: 6616 SIAE  
Express Mail No.: ET931279085US

### CLAIMS

1. A pump including a power screw and at least one idler screw which meshes with the power screw, the power screw and idler screw being rotatable in a housing, the idler screw having at least one screw form including a generally helical groove and a generally helical land surface, the land surface having a first and a second edge portion, each of which is adjacent to the or a groove, the distance between the land surface and a longitudinal axis of the idler screw varying between the first edge portion and the second edge portion, the distance between the first edge portion and the longitudinal axis of the idler screw being substantially constant over the length of the screw form and the distance between the second edge portion and the longitudinal axis of the idler screw being substantially constant over the length of the screw form.
2. A pump according to claim 1 wherein the distance between the or the at least one land surface and a longitudinal axis increases continuously from the first edge portion to the second edge portion.
3. A pump according to claim 1 wherein the distance between the or at least one land surface and the longitudinal axis initially increases from the first edge portion to a position intermediate the first and second edge portions, and then remains generally constant from the intermediate position to the second edge portion.
4. A pump according to claim 3 wherein the intermediate position is approximately half-way between the first and second edge portions.
5. A pump according to claim 1 wherein the idler screw is arranged so that the first edge portion leads the second edge portion as the idler screw rotates in use.

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6. A pump according to claim 1 wherein the first and/or the second edge portions include a radiussed lead-in to the or an adjacent groove.

7. A pump according to claim 1 wherein the power screw includes at least one generally helical ridge which engages with the generally helical groove of the or each idler screw.

8. A pump according to claim 1 wherein each idler screw includes two generally helical grooves of substantially the same pitch and two generally helical land surfaces, each land surface having a first and a second edge portion, each of which is adjacent to a groove, the distance between each land surface and a longitudinal axis of the idler screw varying between the first edge portion and the second edge portion over at least part of the length of the idler screw.

9. A pump according to claim 8 wherein the power screw includes two generally helical ridges of substantially the same pitch.

10. A pump according to claim 1 wherein the pump includes two idler screws located at diametrically opposite sides of the power screw.

11. A pump according to claim 1 wherein the difference in the distance between the longitudinal axis of the idler screw and the land surface at the first edge portion and the second edge portion is up to 4% of the largest distance between the longitudinal axis of the idler screw and the land surface.

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12. A pump according to claim 1 wherein an end of the or each idler screw is mounted in a bearing provided in the housing.